This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1 (original): For use in an edge device of a transport network, a method for processing data, received from a first customer device via access facilities, addressed to a second customer device, the method comprising:

a) terminating, with a physical interface, a link of the access facilities;

b) associating at least one logical interface with the physical interface;

c) associating customer context information with the logical interface; and

d) upon receiving the data,

i) removing at least a part of layer 2 address information from the data to generate resulting data, and

ii) adding the customer context information to the resulting data to generate modified data.

Claim 2 (original): The method of claim 1 wherein the customer context information added to the resulting data is added in the place of the at least a part of the layer 2 address information removed.

Claim 3 (original): The method of claim 1 further comprising:

e) aggregating the modified data at the logical interface with other modified data at other logical interfaces, for trunking on a shared, network-facing, communications link.

Claim 4 (original): The method of claim 1 further comprising:

f) saving, in association with the logical interface, layer 2 source address information of the data.

Claim 5 (original): The method of claim 1 wherein at least a portion of the customer context information identifies a unique virtual private network customer.

Claim 6 (original): The method of claim 5 wherein at least a portion of the customer context information identifies a unique host of the unique virtual private network.

Claim 7 (original): The method of claim 5 wherein at least a portion of the customer context information uniquely identifies the logical interface within a given virtual private network customer.

Claim 8 (original): The method of claim 1 wherein at least a portion of the customer context information uniquely identifies the logical interface.

Claim 9 (original): The method of claim 1 wherein at least a portion of the customer context information identifies a class of service level.

Claim 10 (original): The method of claim 1 wherein at least a portion of the customer context information identifies a quality of service level.

Claim 11 (original): The method of claim 3 further comprising:

f) receiving the modified data from the shared, network-facing, communications link; and

g) encapsulating the modified data with carrier information, used to forward the modified data across the transport network to a second edge device with which the second customer device has access.

Claim 12 (original): The method of claim 11 wherein the carrier information includes an address of the second edge device.

Claim 13 (original): The method of claim 11 wherein the data includes a layer 3 destination address corresponding to a layer 3 address of the second customer device, and wherein the address of the second edge device is derived from a layer 3 destination address of the data and at least a part of the customer context information.

Claim 14 (original): The method of claim 11 wherein the carrier information includes service level information.

Claim 15 (original): The method of claim 11 wherein the data includes a layer 3 destination address corresponding to a layer 3 address of the second customer device, the method further comprising:

h) at the second edge device, removing the carrier information to obtain the modified data; and

i) advancing the data to a logical interface associated with the second customer device, wherein the logical interface associated with the second customer device is determined based on the layer 3 address of the second customer device and at least a part of the customer context information.

Claim 16 (original): The method of claim 15 wherein the data is advanced to the logical interface associated with the second customer device by generating an effective address of the logical interface associated with the second customer device, based on at the layer 3 address of the second customer device and at least a part of the customer context information.

Claim 17 (original): The method of claim 16 further comprising:

j) replacing as a destination address, the effective address with a layer 2 address of the second customer device.

Claim 18 (original): The method of claim 17 wherein the layer 2 address of the second customer device was previously associated with its corresponding logical interface and stored.

Claim 19 (original): The method of claim 1 wherein the layer 2 address information of the data is part of an Ethernet header, and

wherein the customer context information replaces a value in a layer 2 source address field of the Ethernet header.

Claim 20 (original): The method of claim 3 wherein the layer 2 address information of the data is an Ethernet header,

wherein the customer context information replaces a value in a layer 2 destination address field of the Ethernet header, and

wherein a node terminating the shared, network-facing, communications link operates in the promiscuous mode.

Claim 21 (previously presented): For use in a system including a transport network, the transport network including at least two edge devices, each of the at least two edge devices being accessible to customer devices via access facilities and having logical interfaces, each logical interface uniquely associated with a customer device, a machine readable medium having stored thereon:

a) data received from a first customer device and addressed to a second customer device; and

b) customer context information associated with the logical interface uniquely associated with the first customer device,

wherein at least a part of the customer context information identifies, at least one of (A) the logical interface uniquely, (B) a customer uniquely, and (C) a service level.

Claims 22-24 (canceled)

Claim 25 (original): The machine readable medium of claim 21 further having stored thereon:

c) carrier information used to forward the data, across the transport network, to an edge device associated with the second customer device.

Claim 26 (original): The machine readable medium of claim 25 wherein the carrier information includes an address of the edge device associated with the second customer device, and

wherein the address of the edge device is based on the address of the second customer device and at least a part of the customer context information.

Claim 27 (original): For use at an edge device of a transport network, the edge device serving customer devices coupled via access facilities, a method for maintaining carrier information tables, the method comprising:

a) terminating, with a physical interface, a link of the access facilities;

b) associating at least one logical interface with the physical interface;

c) associating customer context information with the logical interface;

d) upon receiving data from a customer device, adding the customer context information to generate modified data;

e) if the data received from the customer device is an address advertisement, then forwarding the modified data to an edge information update facility; and

f) if a table update is received from the edge information update facility, then updating a carrier information table.

Claim 28 (original): The method of claim 27 wherein the carrier information table associates carrier information with a layer 3 destination address and at least a part of customer context information.

Claim 29 (original): The method of claim 27 wherein the modified data is forwarded to the edge information update facility via a network other than the transport network.

Claim 30 (original): The method of claim 27 wherein if the data received from the customer device is an address advertisement, first encapsulating the modified data in carrier information before forwarding the modified data to an edge information update facility.

Claim 31 (previously presented): For use in a system including a transport network, the transport network including at least two edge devices, each of the at least two edge devices being accessible to customer devices via access facilities and having logical

interfaces, each logical interface uniquely associated with a customer device and having associated customer context information, a machine readable medium having stored thereon a customer context-based forwarding table, the customer context-based forwarding table comprising a plurality of entries, each of the entries including:

a) carrier information; and

b) at least a part of a layer 3 destination address and at least a part of customer-based context information,

wherein the at least a part of customer-based context information includes information for uniquely identifying a customer, and wherein the information for uniquely identifying a customer is a VPN-OUI.

Claim 32 (original): The machine readable medium of claim 31 wherein devices of different customers can have the same layer 3 address, such devices being uniquely addressable based on at least a part of their layer 3 address and at least a part of customer-based context information.

Claims 33 and 34 (canceled)

Claim 35 (previously presented): The machine readable medium of claim 31 wherein the at least a part of customer-based context information further includes information for uniquely identifying a host of a given customer.

Claim 36 (original): The machine readable medium of claim 35 wherein the information for uniquely identifying a host of a given customer is a VPN-Index.

Claim 37 (original): The machine readable medium of claim 31 further comprising:

c) a layer 3 address of an egress edge device.

Claim 38 (canceled)

Claim 39 (original): For use in an edge device of a transport network, an aggregation unit for processing data, received from a first customer device via access facilities, addressed to a second customer device, the aggregation unit comprising:

a) a physical interface for terminating a link of the access facilities;

b) at least one logical interface associated with the physical interface;

c) a storage device for storing customer context information associated with the logical interface; and

d) means for, upon receiving the data,

i) removing at least a part of layer 2 address information from the data to generate resulting data, and

ii) adding the customer context information to the resulting data to generate modified data.

Claim 40 (original): For use in a system including

- a transport network, and
- an aggregation unit for processing data, received from a first customer device via access facilities, addressed to a second customer device, the aggregation unit including (a) a physical interface for terminating a link of the access facilities, (b) at least one logical interface associated with the physical interface, (c) a storage device for storing customer context information associated with the logical interface, (d) means for, upon receiving the data, adding the customer context information to the data to generate modified data, and (e) means for aggregating the modified data at the logical interface with other modified data at other logical interfaces, for trunking on a shared network-facing, communications link,

an access router, the access router comprising:

a) a port for receiving the modified data from the shared, network-facing, communications link; and

b) means for encapsulating the modified data with carrier information, used to forward the modified data, across the transport network, to a second edge device associated with the second customer device.

Claim 41 (original): The access router of claim 40 wherein the carrier information includes an address of the second edge device.

Claim 42 (original): The access router of claim 40 wherein the data includes a layer 3 destination address corresponding to a layer 3 address of the second customer device, and wherein the address of the second edge device is derived from the layer 3 destination address included in the data and at least a part of the customer context information.

Claim 43 (canceled)

Claim 44 (previously presented): The method of claim 1 wherein the first customer device has a layer 2 address.

Claim 45 (previously presented): The method of claim 1 wherein the first customer device has a layer 3 address.

Claim 46 (previously presented): The method of claim 1 wherein the first customer device and the second customer device are provided outside of the edge device of the transport network.

Claim 47 (new): The method of claim 1 wherein each of the at least one logical interfaces may be associated with only one physical interface, and may not be associated with more than one physical interface.

Claim 48 (new): The aggregation unit of claim 39 wherein each of the at least one logical interfaces may only be associated with only one physical interface, and may not be associated with more than one physical interface.